What is claimed is:

1. A method for generating electrical power, wherein

said method comprises driving electrical current alternately through a first input coil extending around a first portion of a first magnetic path and a second input coil extending around a first portion of a second magnetic path, inducing a flow of electrical current through a first output coil extending around a second portion of said first magnetic path due to changes in magnetic flux within said first magnetic path, and inducing a flow of electrical current through a second output coil extending around a second portion of said first magnetic path due to changes in magnetic flux within said second magnetic path,

said first magnetic path includes a first U-shaped magnetic structure extending in a first direction between opposite poles at opposite ends of a permanent magnet,

said second magnetic path includes a second U-shaped magnetic structure extending in a second direction between said opposite poles at said opposite ends of said permanent magnet,

electrical current driven through said first input coil produces a magnetic field opposing a concentration of magnetic flux from said permanent magnet within said first magnetic path, and

electrical current driven through said second input coil produces a magnetic field opposing a concentration of magnetic flux from said permanent magnet within said second magnetic path.

2. The method of claim 1, wherein

said permanent magnet has a pole of a first type at a first end,

said first input coil is displaced along said first magnetic path adjacent said first end of said permanent magnet,

said second input coil is displaced along said second magnetic path adjacent said first end of said permanent magnet,

driving said electrical current through said first input coil causes a magnetic field to be generated having a pole of said first type at an end of said first input coil adjacent said permanent magnet, and

driving said electrical current through said second input coil causes a magnetic field to be generated having a pole of said first type at an end of said second input coil adjacent said permanent magnet.

3. The method of claim 1, wherein

said permanent magnet has a pole of a first type at a first end and of a second type at a second end, opposite said first end,

said first input coil is displaced along said first magnetic path adjacent said first end of said permanent magnet,

said second input coil is displaced along said second magnetic path adjacent said second end of said permanent magnet,

driving said electrical current through said first input coil causes a magnetic field to be generated having a pole of said first type at an end of said first input coil adjacent said permanent magnet, and

driving said electrical current through said second input coil causes a magnetic field to be generated having a pole of said second type at an end of said second input coil adjacent said permanent magnet.

4. The method of claim 1, additionally comprising:

driving a switching and control circuit by an external power source during a starting process, wherein said switching and control circuit drives said electrical current alternately through said first and second input coils

rectifying a first portion of said flow of electrical current through said first and

second output coils to form a first rectified output current; and

driving said switching and control circuit by said first portion of said flow of electrical current following said starting process.

5. The method of claim 4, additionally comprising rectifying a second portion of said flow of electrical current through said first and second output coils to form a second rectified output current flowing through an external load.

6. The method of claim 5, wherein said first portion of said flow of electrical current flows through said first output coil, and said second portion of said flow of electrical current flows through said second output coil.

7. The method of claim 1, wherein said first and second input coils are alternately driven for time periods of approximately 11.5 milliseconds.

8. The method of claim 1, wherein each said U-shaped magnetic structure is composed of a nanocrystalline magnetic alloy.

9. The method of claim 8, wherein said nanocrystalline magnetic alloy is a cobalt-niobium-boron alloy.

10. The method of claim 8, wherein said nanocrystalline magnetic alloy is an iron-based alloy.

11. The method of claim 1, wherein said changes in magnetic flux within said first and second magnetic paths occur without driving said first and second paths to magnetic saturation.

12. A method for generating electrical power, wherein

said method comprises driving electrical current alternately through a first and a second plurality of input coils, and inducing a flow of current within first and second pluralities of output coils by changes in magnetic flux within a magnetic core extending through said input coils and said output coils,

said magnetic core includes an upper plate section extending around an upper aperture, a lower plate section, spaced apart from said upper plate section, extending around a lower aperture, and a plurality of posts extending in a first pattern around said upper and lower apertures and between said upper and lower plates,

a plurality of permanent magnets extend in a second pattern around said upper and lower apertures and between said upper plate section and said lower plate section,

each post within said plurality of posts extends between an adjacent pair of permanent magnets within said plurality of permanent magnets,

each permanent magnet within said plurality of permanent magnets extends between an adjacent pair of posts within said plurality of posts,

all permanent magnets within said plurality of permanent magnets have a pole of a first type at an end adjacent said upper plate and a pole of a second type at an end adjacent said lower plate,

each input coil in said first plurality of input coils extends around a plate section within said magnetic core between a permanent magnet and a post extending through an output coil in said first plurality of output coils adjacent said permanent magnet and spaced apart from said permanent magnet in a first direction along said plate section, being oriented to oppose a concentration of flux extending from said permanent magnet through said input coil when electrical current is driven through said input coil, and

each input coil in said second plurality of input coils extends around a plate

section within said magnetic core between a permanent magnet an a post extending through an output coil in said second plurality of output coils adjacent said permanent magnet and spaced apart from said permanent magnet opposite said first direction along said plate section, being oriented to oppose a concentration of flux extending from said permanent magnet through said input coil when electrical current is driven through said input coil.

13. The method of claim 12, wherein each input coil in said first and second pluralities of input coils extends around said upper plate section.

14. The method of claim 12, wherein

each input coil in said first plurality of input coils extends around said upper plate section, and

each input coil in said second plurality of input coils extends around said lower plate section.